

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

WHAT IS CLAIMED IS:

1. A watercraft comprising a water propulsion device, an engine powering the water propulsion device, an engine output control mechanism arranged to control the output of the engine, a steering mechanism arranged to steer the watercraft, a first sensor arranged to sense a state of the engine output control mechanism, a second sensor arranged to sense a state of the steering mechanism, and a control device configured to control the engine output control mechanism based upon a first control parameter corresponding to an output of the first sensor and a second control parameter corresponding to an output of the second sensor, the control device configured to cause the engine output control mechanism to increase engine output when the first control parameter is less than a first reference magnitude and the second control parameter is greater than a second reference magnitude.

2. The watercraft of Claim 1, wherein the control device continues to control the engine output control mechanism until the first control parameter reaches an objective magnitude.

3. The watercraft as set forth in Claim 2, wherein the control device ceases the coercion control of the engine output control mechanism when the first control parameter satisfies a first reference condition or the second parameter satisfies a second reference condition.

4. The watercraft as set forth in Claim 2, wherein the control device includes a timer, and the control device ceases the coercion control of the engine output control mechanism when a predetermined time elapses.

5. The watercraft as set forth in Claim 1, wherein the control device controls the engine output control mechanism to increase the engine output gradually or step by step.

6. The watercraft as set forth in Claim 1, wherein the water propulsion device includes an impeller driven by the engine for producing a thrust force, the control device controls the engine output control mechanism to increases the engine output to a magnitude where the impeller rotates with a rotational speed that is greater than a critical rotational speed thereby the watercraft starts planing.

7. The watercraft as set forth in Claim 1, wherein the engine has at least one combustion chamber and an air induction system arranged to provide air to the combustion chamber, the engine output control mechanism includes a throttle valve disposed in the air induction system for measuring an amount of the air, the first sensor is arranged to sense an opening degree of the throttle valve, and the control device controls the throttle valve to increase the opening degree of

the throttle valve when the sensed opening degree is less than a reference opening degree and the second control parameter is greater than the second reference magnitude.

8. The watercraft as set forth in Claim 7, wherein the throttle valve continues to open until an opening degree thereof reaches an objective opening degree under the coercion control of the control device.

9. The watercraft as set forth in Claim 8, wherein the control device ceases the coercion control of the engine output control mechanism when the sensed opening degree increases to the objective opening degree.

10. The watercraft as set forth in Claim 7, wherein the engine output control mechanism includes an electrically operated actuator, and the control device controls the throttle valve through the actuator.

11. The watercraft as set forth in Claim 10, wherein the throttle valve is journaled for pivotal movement about a pivot axis, the first sensor is positioned on one end of the pivot axis and the actuator is positioned on the other end of the pivot axis.

12. The watercraft as set forth in Claim 1, wherein the engine has at least one combustion chamber and an air induction system arranged to provide air to the combustion chamber, the engine output control mechanism includes a throttle valve disposed in the air induction system for measuring an amount of the air, the first sensor is arranged to sense an opening degree of the throttle valve, a bypass disposed in the air induction system for permitting the air to bypass the throttle valve, and a bypass valve arranged to control the air passing through the bypass, the control device controls the bypass valve to increase the amount of the air so as to increase the engine output.

13. The watercraft as set forth in Claim 1, wherein the engine has at least one combustion chamber and an air induction system arranged to provide air to the combustion chamber, the engine output control mechanism includes a throttle valve disposed in the air induction system for measuring an amount of the air, and a throttle controller disposed apart from the air induction system to remotely control a position of the throttle valve, the first sensor is arranged to sense a position of the throttle valve or a position of the throttle controller.

14. The watercraft as set forth in Claim 1, wherein the steering mechanism includes a steering assembly and a deflector disposed at the water propulsion device, the steering assembly and the deflector are linked together, and the second sensor is arranged to sense an angular

position of the steering assembly or the deflector, the control device controls the engine output control mechanism to increase the engine output when the sensed angular position of the steering assembly or the deflector is greater than a reference angular position and the first control parameter is less than the first control parameter.

5 15. The watercraft as set forth in Claim 14, wherein the control device ceases the coercion control when the sensed angular position becomes generally zero.

10 16. The watercraft as set forth in Claim 1, wherein the engine includes an ignition system arranged to ignite a combustible charge in a combustion chamber of the engine, and the control device controls the engine output control mechanism to advance an ignition timing of the ignition system to increase the engine output.

15 17. The watercraft as set forth in Claim 1, wherein the engine includes a fuel delivery system arranged to deliver fuel to a combustion chamber of the engine, and the control device controls the engine output control mechanism to increase an amount of the fuel to increase the engine output.

20 18. The watercraft as set forth in Claim 1, wherein the engine includes a fuel injection system arranged to spray fuel to a combustion chamber of the engine, and the control device controls the engine output control mechanism to advance an injection timing to increase the engine output.

25 19. The watercraft as set forth in Claim 1, wherein the control device holds the coercion control of the engine output control mechanism so that a thrust force of the water propulsion device continues to be greater than a reference thrust force thereof.

25 20. The watercraft as set forth in Claim 1 additionally comprising a third sensor arranged to sense a velocity of the watercraft, the control device controls the engine output mechanism additionally based upon a third control parameter corresponding to an output of the third sensor, and the control device coerces the engine output control mechanism into increasing the engine output unless the third control parameter is less than a third reference magnitude.

30 21. The watercraft as set forth in Claim 1, wherein the water propulsion device includes a jet unit producing thrust force.

30 22. The watercraft as set forth in Claim 21, wherein the jet unit includes a discharge nozzle from which water is spouted out and a trim adjustment mechanism arranged to adjust a trim position of the discharge nozzle, the trim adjustment mechanism brings the discharge nozzle

into a trim down position when the control device controls the engine output control mechanism to increase the engine output.

23. The watercraft as set forth in Claim 22, wherein the control device controls the trim adjustment mechanism.

5 24. The watercraft as set forth in Claim 1 additionally comprising a switchover mechanism selectively activating and disabling the control device.

10 25. The watercraft as set forth in Claim 24, wherein the switchover mechanism has a first state in which the engine is operable and the control device is activated, a second state in which the engine is operable and the control device is disabled, and a third state in which the engine is not operable and the control device is disabled.

15 26. The watercraft as set forth in Claim 25, wherein the switchover mechanism includes a first holder to hold the switchover mechanism in the first state or in the third state, a second holder to hold the switchover mechanism in the second state or in the third state, and the first and second holder is selectively available.

20 27. The watercraft as set forth in Claim 26, wherein the first and second holders are lanyard switch members.

25 28. A watercraft comprising a water propulsion device, an engine powering the water propulsion device, an engine output control mechanism arranged to control output of the engine, a steering mechanism, a first sensor arranged to sense a state of the steering mechanism, a second sensor arranged to sense a velocity of the watercraft, and a control device configured to control the engine output control mechanism based upon a first control parameter corresponding to an output of the first sensor and a second control parameter corresponding to an output of the second sensor, the control device causing the engine output control mechanism to increase engine output when the first control parameter is greater than a first reference magnitude and the second control parameter is greater than a second reference magnitude.

30 29. A watercraft comprising a water propulsion device, an engine powering the water propulsion device, a steering mechanism arranged to steer a thrust direction of the water propulsion device, the thrust direction being quickly changeable under a first condition when the water propulsion device produces a thrust force greater than a predetermined thrust force, recognizing means for recognizing that the steering mechanism is steered under a second condition in which the water propulsion device does not produce a thrust force greater than the

predetermined thrust force, and means for increasing an output of the engine when the recognizing means recognizes that the steering mechanism is steered under the second condition.

30. The watercraft as set forth in Claim 29, wherein the increasing means ceases increasing of the output of the engine when the steering mechanism is back in a neutral position where the thrust direction of the water propulsion device is not steered.

31. The watercraft as set forth in Claim 30 additionally comprising a changeover mechanism selectively activating and disabling the increasing means.

32. The watercraft as set forth in Claim 29, wherein the increasing means ceases increasing of the output of the engine when a predetermined time elapses.

10 33. A watercraft comprising a water propulsion device, an engine powering the water propulsion device, the engine having at least one combustion chamber and an air induction system arranged to provide air to the combustion chamber, at least one throttle valve disposed in the air induction system for regulating an amount of air supplied to the combustion chamber, a steering assembly arranged to steer the watercraft, a first sensor arranged to sense an opening degree of the throttle valve, a second sensor arranged to sense an angular position of the steering assembly, an electrically operated control device, and a throttle valve actuator arranged to operate the opening degree of the throttle valve, the control device being configured to control the throttle valve actuator based upon an output of the first sensor and an output of the second sensor, the control device causing the throttle valve actuator to operate the at least one throttle valve to increase its opening degree when the output of the first sensor indicates that the sensed opening degree less than a reference opening degree and the output of the second sensor indicates that the sensed angular position is greater than a reference angular position.

20 34. The watercraft as set forth in Claim 33 additionally comprising a third sensor arranged to sense a velocity of the watercraft, wherein the control device coerces the throttle valve actuator into operating the throttle valve to increase the opening degree unless an output of the third sensor indicates that the velocity of the watercraft is less than a reference velocity.

25 35. The watercraft as set forth in Claim 34, wherein the control device includes a storage to store data of opening degrees of the throttle valve versus velocities of the watercraft, the control device determines one of the opening degrees that corresponds to the sensed output of the third sensor as an objective opening degree, and the control device controls the throttle valve actuator to operate the throttle valve to increase the opening degree to the objective opening degree.

36. The watercraft as set forth in Claim 35, wherein the control device ceases the coercion control when the sensed opening degree of the throttle valve increases to the objective opening degree, the sensed angular position of the steering assembly is generally zero, or the sensed velocity of the watercraft is less than a second reference velocity.

5 37. The watercraft as set forth in Claim 35, wherein the control device includes a timer, and the control device ceases the coercion control when a predetermined time elapses.

10 38. The watercraft as set forth in Claim 34, wherein the control device includes a storage to store data of opening degrees of the throttle valve versus velocities of the watercraft and data of the angular positions of the steering assembly versus velocities of the watercraft, the control device determines one of the opening degrees that corresponds to the sensed output of the third sensor as the reference opening degree and also determines one of the angular positions that corresponds to the sensed output of the third sensor as the reference angular position.

15 39. A control method for an engine of a watercraft having a water propulsion device, an engine output control mechanism, a steering mechanism, at least two sensors and a control device, the method comprising sensing a state of the engine output control mechanism by one sensor, sensing a state of the steering mechanism by another sensor, determining whether a first control parameter corresponding to a sensed state of the engine output is less than a first reference magnitude, determining whether a second control parameter corresponding to a sensed state of the steering mechanism is greater than a second reference magnitude, and increasing an engine output 20 by the control device if the results of both determinations are affirmative.

25 40. The control method as set forth in Claim 39 additionally comprising judging whether the first control parameter satisfies a first reference condition, judging the second control parameter satisfies a second reference condition, and ceasing the increase of the engine output if at least one of results of the judgments is affirmative.

41. The control method as set forth in Claim 39 additionally comprising setting a predetermined time, judging whether the predetermined time elapses, and ceasing the increase of the engine output if the time elapses.

30 42. A control method for an engine of a watercraft having a water propulsion device, a steering assembly, at least two sensors and a control device, the engine including a throttle valve and a throttle valve actuator, the method comprising sensing an opening degree of the throttle valve by one sensor, sensing an angular position of the steering assembly by another sensor,

determining whether the sensed opening degree is less than a reference opening degree, determining whether the sensed angular position is greater than a reference angular position, and increasing the opening degree by the control device if the results of both determinations are affirmative.

5 43. The control method as set forth in Claim 42 additionally comprising sensing a velocity of the watercraft, determining whether the sensed velocity is greater than a reference velocity, and increasing the opening degree unless a result of the determination of the velocity is negative.

10 44. The control method as set forth in Claim 43 additionally comprising storing data of opening degrees of the throttle valve versus velocities of the watercraft in a storage of the control device, determining one of the opening degrees that corresponds to the sensed velocity as an objective opening degree, and increasing the opening degree by the throttle valve actuator to the objective opening degree.

15 45. The control method as set forth in Claim 44 additionally comprising judging whether the sensed opening degree increases beyond the objective opening degree, judging whether the sensed angular position is generally zero, judging whether the sensed velocity is less than a second reference velocity, and ceasing the increase of the opening degree if at least one of results of the judgments is affirmative.

20 46. The control method as set forth in Claim 45 additionally comprising storing data of opening degrees of the throttle valve versus velocities of the watercraft in a storage of the control device, storing data of the angular positions of the steering assembly versus velocities of the watercraft in the storage of the control device, determining one of the opening degrees that corresponds to the sensed velocity as the reference opening degree, and determining one of the angular positions that corresponds to the sensed velocity as the reference angular position.